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Front Cover Photographs — Mr. Barnum (Blank & Stoller); Mr. Prentis (Blackstone Studios)

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AMERICAN STANDARDS ASSOCIATION

ASA MEMBER-BODIES

Am. Gas Association
Am. Home Economics Assn.
Am. Institute of Bolt, Nut & Rivet Mfrs.
Am. Institute of Elec. Engineers
Am. Iron & Steel Institute
Am. Petroleum Institute
Am. Soc. of Civil Engineers
Am. Soc. of Mechanical Engineers
Am. Soc. for Testing Materials
Am. Transit Association
Assn. of American Railroads
Assn. of Am. Steel Manufacturers
Technical Committees
Assn. of Gas Appliance & Equipment Mfrs.
Cast Iron Pipe Research Assn.
Electric Light and Power Group:
Assn. of Edison Illuminating Companies
Edison Electric Institute
Federal Housing Administration

Fire Protection Group:
Associated Factory Mutual Fire Insurance Companies
Nat. Bd. of Fire Underwriters
Nat. Fire Protection Assn.
Underwriters' Laboratories
Institute of Radio Engineers
Light Metals Group:
Aluminum Company of America
Mfrs. Standardization Soc. of the Valve and Fittings Industry
Nat. Assn. of Master Plumbers
Nat. Assn. of Motor Bus Operators
Nat. Assn. of Mutual Casualty Companies
Nat. Bureau of Casualty and Surety Underwriters
Nat. Electrical Mfrs. Assn.
Nat. Machine Tool Builders' Assn.
Nat. Safety Council
The Panama Canal
Soc. of Automotive Engineers
Telephone Group:
Bell Telephone System
U. S. Department of Agriculture

U. S. Department of Commerce
U. S. Department of Interior
U. S. Department of Labor
U. S. Govt. Printing Office
U. S. Navy Department
U. S. War Department
Vacuum Cleaner Mfrs. Assn.

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Am. Gear Mfrs. Association
Am. Hospital Association
Am. Soc. of Sanitary Engineering
Am. Water Works Association
Grinding Wheel Mfrs. Association
Illum. Engineering Society
Industrial Safety Equipment Assn.
Internat. Acetylene Association
Mfg. Chemists Association
Metal Lath Mfrs. Association
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U. S. Machine Screw Service Bur.

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DECEMBER
1936

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ASA Re-Elects Barnum, Prentis

Farmer and Pettibone To Head Standards Council

RE-ELECTION of president and vice-president, election of new officers for the Standards Council, reports showing an increased broadening of scope and membership of the American Standards Association during the past year, and an address by Henry I. Harriman, former chairman of the Chamber of Commerce of the United States, marked the Annual Meeting of the American Standards Association at the Hotel Astor, New York, December 9.

Dana D. Barnum, president of the Consolidated Gas Company, Boston, Mass., and Edmund A. Prentis, of the firm of Spencer, White and Prentis, Inc., were re-elected president and vice-president of the American Standards Association for the coming year. Mr. Barnum has served on the Board of Directors of the American Standards Association since 1933, and as president of the Association for the past year. He is a past-president of the American Gas Association, which nominated him for membership on the ASA Board.

Mr. Prentis was nominated as a member of the Board by the American Society of Civil Engineers.

F. M. Farmer, vice-president of the Electrical Testing Laboratories, New York, newly elected chairman of the Engineering Foundation, was elected new chairman of the Standards Council. C. E. Pettibone, vice-president, American Mutual Liability Insurance Company, Boston, was named vice-chairman.

Approves Standards

The Council is the administrative committee which has final supervision of all the technical work of the Association, including official approval of standards.

Mr. Farmer, who has been active in many dif-

ferent phases of ASA work, as chairman of two sectional committees and member of two others, and as a member of the Electrical Standards Committee and the United States National Committee of the International Electrotechnical Commission, has been a member of the Standards Council since 1934. He was vice-chairman of the Council last year.

Mr. Pettibone has been a member of the Council since 1928, and has also been a member of the ASA Board of Directors, the Sectional Committee on the Textile Safety Code and the Safety Code Correlating Committee of which he has been chairman. He represents the National Association of Mutual Casualty Companies.

Harriman Is Speaker

The Annual Meeting, which included a meeting of the Standards Council in the morning, a meeting of the Board of Directors in the afternoon, and a joint dinner meeting in the evening, was attended by approximately 75 members of Standards Council, the Board of Directors, and business leaders.

Henry I. Harriman, member of the Board of the New England Power Association, and former president of the Chamber of Commerce of the United States, was the speaker of the day. He has just returned from a series of international conferences in Europe and he took the European situation and its application to American problems as text for his address. His paper is presented in full beginning on page 310.

Mr. Barnum presented his report as president for the past year at the annual dinner.

"Standardization," he said, "is one of the many

fields in which Government and Industry can cooperate to the end of increasing production, reducing costs, and eliminating waste." He outlined the position of the ASA in bringing about these desired ends, and stressed particularly the need for a larger staff to handle the many pressing problems now coming before the Association. His complete report is published below.

J. C. Irwin, retiring chairman of the Standards Council, in his report on the work of the Council, also presented at the dinner meeting, said that the past year has shown particularly important results in extending the scope of the Association's activities and in developing the departmental industrial divisions authorized last year. He stressed the activities in the fields of building codes, public safety, and occupational diseases, the organization of the Advisory Committee on Ultimate Consumer Goods, and the proposed forum for informal discussion of company standardization problems as important indications of this broadening interest.

Thirty-three new standards and 33 revisions to standards previously adopted have been approved by the American Standards Association during the past year, Mr. Irwin said, bringing the total of approved American Standards up to 357. In approving these 357 standards, the American Standards Association has brought together approximately 3,000 experts, representing more than 500 national organizations, to act on the committees in charge.

Mr. Irwin pointed to the world-wide agreement on a standard 16-mm sound film, the completion of the standard classification of coals, the sound level and sound meter standards, specifications for safety glass, and the report on safety standards for buses and trucks prepared for the Interstate Commerce Commission by one of the ASA committees and used by the Commission as basis for its public hearings, as of outstanding interest in the work of the year.

Mr. Irwin's report is published in full beginning on page 307.

Cooperation—

Keynote of ASA Past and Future

Annual Report

by

Dana D. Barnum

*President, American
Standards Association*

I AM going to try to outline some of the problems ahead of us and point out the difficulties that we may meet.

I believe our past history proves many things to us, and if we take heed we will be able to not repeat our errors and to escape pitfalls that may come in our way.

Our records show that industry and govern-

mental bureaus and regulatory bodies accept our codes as authentic. Four years ago, the National Screw Thread Commission, established by Act of Congress, was abolished, and its work has been continued by this Association. The whole problem of the Building Code Correlating Committee has been undertaken at the request of the present Administration. Last winter the Interstate Commerce Commission asked us to help draw up specifications for inspection of buses and trucks.

Fundamentally, our standards and codes are accepted because they are arrived at by comprehensive representation and co-operation between industry and governmental bodies. Industry has a VOTE, not just a voice, in determining these matters. When a standard is approved by an As-

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sociation representative committee, of say 30 substantially interested persons representing their industries and technical groups, and government bureaus, the possibility of future controversy and litigation is practically eliminated.

This shows that our conception of how to arrive at results is sound, that our methods give practical results, and that these results have stood the test of time.

Speed Work

No doubt we can and should improve our operations in certain directions. We can move more expeditiously in many matters and still have the benefit of mature deliberation. The speeding up of committee work is largely in the hands of committee chairmen and committee secretaries, and I believe the staff should be large enough to furnish such secretarial work—not only that the work be pushed along, but that headquarters may know and keep track of the progress and keep the chairman of the Standards Council informed on the status of all projects periodically. We need more money for staff work, for facilities, and for personnel. We also need a back log, or revolving fund, to come and go on. We get down to the bare bones altogether too often although this past year has been much better than the previous two or three years.

With the foundation we have built and the improvements we can bring about along the lines we are now working on, the question arises: How about the future?

Let us look at the picture and try to discern the goal we should aim at. Industry is on the way up. It is undoubtedly true, as Mr. Cameron of the Ford Company says, that our production is nowhere near the needs of the people of the United States. To meet these needs, production, distribution, and utilization costs must be reduced. Waste of all kinds must be eliminated to approach the desired end. Industry has the knowledge and experience to best work out the cost end of the problem, but I doubt if it can do it alone without the intelligent cooperation of Government—Federal, State and Municipal. The ASA offers such cooperation within the scope of our activities.

500 Organizations Participate

Founded in 1918 by five major engineering societies, today we have 56 national groups—government, trade associations, and technical societies. Five hundred national organizations are participating in our work. We first started by standardizing mechanical parts; we are now in the field of regulatory standards and codes for protecting life and property.

Standardization is one of the fields in which government and industry can cooperate to increase production, reduce costs, and eliminate waste, and the American Standards Association is an important factor, said Mr. Barnum. He outlined seven rules for continued success.

We must furnish ways and means of establishing standards that Industry will accept, and codes that regulatory bodies can enforce.

We must do this work in an efficient and expeditious manner.

We must keep within our legitimate field.

We must remember that the real object is the conservation of manpower, time and material.

We must confine our work to the necessary things and not be led astray by activities that are only desirable.

Above all things we must be sure that all substantially-interested groups—public, government and industry—are fairly and justly represented in the Council, Committees and the Board of Directors.

We must be sure that our methods give a square deal to all and favors to none; further, that this responsibility be appreciated by all members at all times.

Intelligent and efficient administration by regulatory bodies of standards and codes drafted in cooperation with industry, in accordance with experience and knowledge of the underlying principles of production, distribution, and utilization, supplement and make possible what neither industry nor government can accomplish alone. Government has the Power and Research Agencies; industry has the Knowledge and Experience, and together under our method of procedure, they find solutions for the essential problems, and not compromises.

Standardization is one of the many fields in which government and industry can cooperate to the end of increasing production, reducing costs, and eliminating waste. Standardization begins with the details of shop practice; it extends to company work; and from there to industry. It then branches out to related industries and extends throughout all industrial and commercial opera-



Blank & Stoller

George B. Cortelyou

Chairman of the ASA Advisory Committee, formerly Postmaster General, Secretary of the Treasury and of Commerce, when unexpectedly called upon during the Annual Meeting dinner, made this comment on the work of the American Standards Association.

ASA Success Impressive, Says Cortelyou

I HAVE always been mightily interested in the work of the American Standards Association. From year to year my interest has increased because you have stuck steadily to the idea of keeping standardization within its proper limits.

There are enthusiasts who would standardize everything in sight, but to me your success has been measured by the way you standardize those things which should be standardized. That is what you are doing, and will, I hope, continue to do.

There should be nothing in the nature of regimentation in standardization.

There is no reason why this Association should not make rapid progress in the years to come. There are a great many organizations in this country, whose aims have been nebulous and their accomplishments nil. But this Association has the advantage of having a clear idea of what it is called upon to perform and it has done it—done it magnificently.

There is hardly another organization that has worked within so limited a budget and accomplished such results.

Your success is impressive, and I believe in the future will be still more marked.

tions in production, transportation, and utilization. The problem is not where Standardization should go, but where it should stop.

This Association is an important factor in the above picture.

We must furnish ways and means of establishing standards that industry will accept, and codes that regulatory bodies can enforce.

We must do this work in an efficient and expeditious manner.

We must keep within our legitimate field.

We must remember that our real object is the conservation of manpower, time, and material.

We must confine our work to the necessary things and not be led astray by activities that are only desirable.

Above all things we must be sure that all substantially interested groups—public, government, and industry—are fairly and justly represented in the Council, committees, and the Board of Directors.

We must be sure that our methods give a square deal to all and favors to none; further, that this responsibility be appreciated by all members at all times.

I want to take this opportunity to compliment the members of the Standards Council, particularly its Chairman, Mr. Irwin, on the amount of time, work, and attention they have given to our activities. Every time I look into the work of the Council I am impressed with the multitude of details that must be attended to by the various chairmen in order that they reach decisions that

are solving the problems before them. Few of us realize the immense amount of work there is in arriving at a solution of one project, and we have some 300 on our books.

The work of the staff, of Dr. Agnew and Mr. Ainsworth and their assistants, is to be highly commended. They have had some awkward problems this past year and they have been dealt with in an able manner.

The Association is especially indebted to Mr. Prentis for the amount of time he has given to the work of the Finance Committee and Ways and Means. We are decidedly much better off in

money matters than we were a year ago, and we have gained in membership, and I particularly wish to thank him for the many times he has pinch-hit for me when I was unable to get to New York.

With the personnel that we have, and the foundation we have built, with the record of achievement that we have established, with the machinery in running order, and with the confidence of industry, government, and the public, this Association can do a great deal in a very practical way towards bringing about, by Standardization, that more abundant life, of which we have heard so much in the last four years.

1936 Standardization Program Lists Many Pressing Problems

Progress on Building Codes, Public Safety, Occupational Diseases, Consumer Goods, Opens Wider Field for ASA Activity

by

J. C. Irwin¹

*Retiring Chairman, ASA
Standards Council*

33 New Standards Bring Total Approved to 357

3,000 Experts Represent 500 Organizations in Work on National Standards

THE work of the Council during the year has consisted in developing the divisional organization and extending the scope of the Association activities, especially in the fields of building codes, public safety, and occupational diseases. The adjustment of the organization to cover the work in its enlarged fields, and to pro-

vide for supervisory committees thoroughly representative of each branch of industry and of safety codes, has extended through the past three years.

There is a constantly increasing interest in the activities of the Association, and also a constantly widening recognition of its status as the supreme standardizing body in the field of industrial standardization. Other associations developing stand-

¹Valuation Engineer, Boston & Albany Railroad.

American Standards Reduce Costs, Railroad Committee Tells Companies

"It is obviously most desirable to utilize, as fully as possible, the standards which have been adopted under the procedure of the American Standards Association, a procedure which has been given very careful consideration in order to protect the interests of all parties concerned. The general use of such standards by member companies of the Association of American Railroads should ultimately assist materially in reducing costs of manufacture and time required for delivery"—*Report of Committee on Standardization of Apparatus and Material, Association of American Railroads.*

Seventy-five approved American Standards are of interest to the American railroads, says the report of this committee.

ards in special lines are Member-Bodies of this Association and are presenting their standards or recommended practices to this Association for review and inquiry with a view to their adoption as American Standards. Our sectional committees, each working on a specific project, are carefully made up of skilled representatives of all industries concerned, selected from producer, consumer, distributor, and general interests. Because the Standards Council is similarly constituted, its stamp of approval stands for the consensus of opinion of all industries concerned. The standards are continually under supervision by their committees for possible revision to bring them up to date in accordance with the latest developments.

Attention is directed to the importance of maintaining full representation on the Standards Council and on sectional committees, and of seeing that representatives recognize their responsibilities by attending meetings, replying promptly to correspondence, and by taking a constructive part in the work to which they are assigned. The time to have an influence on a standard is in its formative stages.

From December 1st, 1935, to December 1st, 1936, 33 new standards and 33 revisions to previously adopted standards were approved, a total of 66. During the three-year period, 1934 to

1936 inclusive, 168 standards were approved, of which 102 were new.

The Association has on its books 357 approved American Standards. This represents the combined labors of 3,000 experts on many committees. In their labors these experts have represented more than 500 national organizations. These standards cover diversified subjects in the fields of civil, mechanical, and electrical engineering, metallurgy, chemistry, textiles, oil, and paper industries and miscellaneous subjects of value to many industries and to the public.

Standards for Highway Safety

In connection with standards for operation over streets and highways, our report made at last year's annual meeting mentioned the approval, as American Standard, of the "Manual of Uniform Traffic Control Devices for Streets and Highways." This brings together the manual of the American Association of State Highway Officials and the recommendations of the National Conference on Street and Highway Safety under one cover as American Standard D6-1935. In the same field of safety in highway operation, there are now in the course of investigation and development under ASA procedure Standards for Inspection of Motor Vehicles (D7) and Recommended Standards for Railroad Highway Grade Crossing Protection (D8) issued as Bulletin No. 2 of the Association of American Railroads, Joint Committee on Grade Crossing Protection, and submitted by that Association to the American Standards Association for approval as American Standard. This is now going through the regular ASA procedure.

These new projects, introduced by Member-Bodies of the Association, are indicative of the recognized value of the approval of the American Standards Association in the field of highway transportation. Upon the request of the Interstate Commerce Commission, a special subcommittee was set up on the safety features of buses and trucks for use in interstate commerce. Its report was used by the Commission as a basis for public hearings. It is understood and expected that the new regulations of the Commission will soon be available for public use.

Among the new standards is the classification of coals of all kinds. This marks the completion of a major step in providing a universal language for describing American coals. This project started in 1927. It is by far the most comprehensive undertaking of the kind that has ever been carried through. Directly in connection with this study, the United States and Canadian governments each spent more than \$50,000 in research.

A world standard providing for complete interchangeability of 16-mm sound-film has been accomplished. Up until a few months ago a conflict existed between American and European practice. The latter had the sound-track on the right side of the film; the American practice had it on the left. The American practice has now been adopted as the world standard. The international agreement came about as a result of the action of the American Standards Association at the request of the Society of Motion Picture Engineers in bringing the question before the International Standards Association. The United States is one of twenty countries whose national standardizing bodies are members of the International Standards Association.

After years of difficult and painstaking work on the part of the committee in charge, three fundamental new standards have been developed and approved in the field of measurement and nomenclature of sound. These cover definitions of terms used both in sound engineering and for music. This is particularly interesting in that workers in the art of music and in the science of sound may now understand each other on the basis of precisely drawn definitions. They include a precision method for measuring sound levels. This applies both to "used and useful sounds," and to "noises." Incidentally, "noise" is defined as "any unwanted sound." For practical measurements, specifications are given for a sound level or "noise" meter. This meter is widely used at the present time, and has supplanted five or six designs of meters, the results of which were in no way inter-comparable.

Study Radio Interference

During the year a new project on Radio-Electrical Coordination was inaugurated with the Radio Manufacturers Association as sponsor. The sectional committee on this project will study the causes of radio interference and develop standards for the aid of both radio designers and users of radio sets.

Through the work of the Advisory Committee on Ultimate Consumer Goods of this Association, in cooperation with representatives of the National Retail Dry Goods Association, representing 5,600 of the principal retail stores of the country, systematic progress is being made toward the standardization of Ultimate Consumer Goods—that is goods sold across the counter in the retail trade. From the earnestness and care with which this relatively new line of activity is being undertaken, significant and far-reaching results may be predicted.

Upon a request made early in the year by two large Company Members that a forum be set up in which company standardization problems



J. C. Irwin

Retiring Chairman
ASA Standards Council

might be discussed, an informal conference was held for preliminary consideration of the proposed undertaking. This conference recommended that a forum be organized among American Standards Association Company Members for the informal discussion of matters concerning company standardization work and that it serve primarily as a medium for the free exchange of information on company standardization work, at the discretion of those participating. It was suggested that the information discussed might include the organization and evaluation of such work, the introduction of company standards into practice, and the adaptation of American Standards to company usage. Suggestions for the establishment of new American Standards, or the revision of existing ones which may develop from forum discussions, should come before the American Standards Association through existing channels in accordance with its regular procedure, the conference recommended.

Our monthly magazine, *INDUSTRIAL STANDARD-*

IZATION, has become an increasingly useful medium for the distribution of information in regard to the activities and accomplishments of the Association. Its circulation is now 6,000.

It is a striking fact that the work of the Association has continued right through the years of the depression with slight diminution of technical

activities of the committees, and with extensive developments in new fields. All those whose work in technical committees constitutes the primary function of the organization should take courage in the rapid increase in the usefulness and influence of the work, especially during the past two or three years.

The European Situation And America's Problems

by

Henry I. Harriman

*Past-President, Chamber of
Commerce of the United States*

Wide World Photos, Inc.



I HAVE chosen to speak to you of the European situation because of my deep interest in world affairs, my strong belief that America cannot live isolated from other nations and must inevitably be affected by their prosperity or depression, and a rather unusual opportunity to meet many of the leading figures in foreign countries on recent visits to Geneva as the American Representative on Industry to the International Labor Organization. The I.L.O., as you know, is closely affiliated with the League of Nations. It is made up of representatives of industry, labor, and the government from the leading industrial nations of the world who meet four times annually in Geneva to discuss the world's labor and industrial situation.

At the risk of repeating facts that are undoubtedly familiar to you, I feel that I should briefly review the essential terms of the Treaty of Versailles and of the Locarno Pact, for these two instruments vitally affect the desires and ambitions of the great nations of Europe. The Great War came with apparent swiftness in 1914. It was the result of international conflicts; and particularly the dissatisfaction of the central powers with their portion of the world's Colonial possessions and their share of world trade and commerce. Germany's rise to greatness had followed the period of Colonial expansion which gave England and France their dominant position in America, Asia, Africa, Australia, and Polynesia.

[Here Mr. Harriman briefly reviewed the rise and fall of the Treaty of Versailles, and the economic and political conditions in the chief nations of Europe.]

The question is continuously asked by everyone in Europe, "When will the next war start?"

It is pleasing to turn from the maelstrom of Europe and note that the great nations of North and South America are settling their problems around the council table. I believe the President is acting with infinite wisdom in endeavoring to cement the nations of the two Americas in a compact for peace, for our nations may well become the repository of civilization, if another great war breaks out in Europe. Not only must the nations of America work for world peace, but if war comes in Europe, they must make every effort to maintain real neutrality.

New Deal Is Old Deal

In considering our economic course, it is useful to review the social and industrial legislation of Europe for the last twenty or thirty years, and note particularly what has happened in England, France, and the Scandinavian countries where the forces of Fascism have not held sway.

We note that in those countries, the trend has been away from the fixed gold standard towards a managed currency; that speculation has been curbed, both by laws like the British Companies Act and by the control of credit; that national budgets have been balanced, even though it has meant very high taxes; that collective bargaining on the part of labor is universally recognized as wise and that with it has come a responsibility on the part of labor to keep its contracts; that hours of labor of men, women, and children have been established by laws rather than by competition; that child labor is prohibited; that a minimum wage is almost universal; that social security in the form of old-age, sickness, and unemployment insurance, largely on a contributory basis, is almost universal; that the Government is stimulating the re-housing of the people; that fair prices have been maintained for the products of agriculture; and that in industry the trend has been towards corporate control and regulation rather than by State-owned industry. We must also note the great extent to which the consumer cooperative has affected both distribution and production. In fact, as we review the situation in Europe, we can not but see that much of our New Deal is a very old deal over there.

May I interject a word about the Supreme Court. Because of the many adverse or divided opinions of that Court on laws initiated during Mr. Roosevelt's administration, it is sometimes assumed that the Court had declared the entire program unconstitutional. If we leave out cer-

tain cases like the Hot Oil Case, where the act was declared unconstitutional because of the failure to put proper limitations on the power delegated to the President, we find that the important decisions are as follows:

<i>Name of Case</i>	<i>Affirmed</i>	<i>Denied</i>
Home Building & Loan v. Blaisdell, dealing with the Minnesota Moratorium Act	5	4
Nebbia v. New York, dealing with the New York Milk Control Act	5	4
Norman v. Baltimore & Ohio Railroad, dealing with the "gold clause" in private contracts	5	4
Nortz v. United States, dealing with the requirement to deliver gold to the United States treasurer	5	4
Perry v. United States, dealing with the payment of United States gold clause bonds in legal tender	5	4
Railroad Retirement Board v. Alton Railroad Company, dealing with Railroad Retirement Act	4	5
Schechter v. United States, dealing with the N.R.A.	—	9
United States v. Butler, dealing with the A.A.A.	3	6
Ashwander v. Tennessee Valley Authority, dealing with the T.V.A.	8	1
Carter v. Carter Coal Company, dealing with the Guffey Coal Act	3	6
Ashton v. Cameron County Water Improvement District, dealing with the Municipal Bankruptcy Act	4	5
Morehead v. Tipaldo, dealing with the New York Minimum Wage Law	4	5

It will be seen that in the twelve cases above cited, six cases were upheld and six declared unconstitutional, eight of them were either upheld or invalidated by "5 to 4" votes, and of the total votes cast by the Justices, 51 were to sustain laws and 57 to invalidate them. If we leave out the one unanimous decision, to wit: the NRA Case, the vote would be 51 upholding laws and 48 invalidating them. This clearly shows that the Supreme Court is very evenly divided in its judicial opinion on "New Deal" Acts.

In the consideration of problems, it often clarifies thinking to state the fundamental principles governing the question under discussion.

I am a firm believer in the capitalistic system of conducting business, the fundamental factors of which are the control and conduct of production, trade, and commerce by individuals or corporations for the purpose of profit.

The remarkable progress in industry in the last 150 years amply demonstrates that under this system the world has made great advances in its

power to produce and distribute goods, thereby increasing the standard of living. As Dr. Mills has said, "The machine dominates modern industry, and has been the controlling factor in shaping the conditions under which the present generation lives and works." By some, it is regarded as a Frankenstein that would devour its creator; by others, it is regarded as the short cut to the millennium.

Fortunately, there are reasonable figures which

show the rate of increase in our power to produce, particularly for the last thirty-five years. I will not weary you with many figures, but in a little over three decades, through good and bad times, the productivity of manufacturing industries has advanced by approximately 130 per cent, that is, 43 men can now produce the goods that required 100 men at the beginning of the century. The power of the individual to produce in agriculture has also increased, but not as rapidly as in the factory.

A 14-Point Recovery Program

Mr. Harriman offers a platform of 14 points which he considers essential for future action if recovery is to be made permanent. He says:

1. We must work for world peace.
2. Credit control must be exercised in order to prevent inflation.
3. There should be a definite and continuing census of unemployment.
4. We must have a program which will maintain purchasing power for the farmer.
5. There must be certain restraints on unfair competition.
6. There must be a real strengthening of our civil service.
7. There must be hearty support of the Security Act.
8. Fair labor laws eliminating child labor and setting up minimum pay and maximum hours are necessary.
9. There should be a real rehousing program.
10. I would increase efforts along the present lines to extend foreign trade.
11. A balanced budget with a surplus to pay off our debt in 30 years is essential.
12. There must be some revision of our tax laws.
13. There is great possibility of extending the use of state compacts on economic problems.
14. Finally, I believe in a constitutional amendment which will give to the President of the United States the power to veto or to lessen items in an appropriation bill.

Distribution Main Problem

The real social problem which faces us is how to distribute the increased goods which we can produce. Capital is entitled to its fair share in the form of dividends and interest, but the greater portion of the goods and services, resulting from increased productive capacity, must be distributed either in the form of lowered prices, which means not only increased demand but a sharing of progress with the entire population, or in the form of increased wages or shorter hours of work.

During the first 15 years of the present century, the larger portion of the gains of industrial progress were passed on to the consumer in the form of lowered prices for manufactured goods, but since the close of the World War this tendency towards lowered prices has been largely confined to a few industries, and the greater portion of the gains from productive capacity has been distributed in the form of increased profits to capital, shorter hours or higher wages. Shorter hours and higher wages are desirable, but are not as stimulating to industry as the general lowering of prices, which divides progress among all consumers. In fact, it was the check to that tendency which greatly intensified the depression.

I am glad to note that in the last thirty years wages have increased by 30 per cent, and hours of labor have decreased in even a higher ratio, but let us never forget that the great stimulation to industry and employment comes from continuously lowering prices of manufactured articles.

Production Increasing

In the danger of being charged with repetition, let me close by saying that our power to produce goods increases each year, increasing about 1½ per cent over what we could produce in the preceding year. That is the measure of our technical progress. If our economic knowledge equaled our technical knowledge, if we had learned how to fairly distribute the increased goods which we can make, all would be well; but if we stumble, if capital seizes too much, or labor takes more

ASA Work Influences New Trend To Lower Prices, Better Product

Howard Coonley, president, Walworth Company, past-president, American Standards Association, comments on Mr. Harriman's address

IT is evident that we are facing a new future, and an intensely interesting one.

I do not think we need much imagination to realize what part the American Standards Association can play in the development of that future, and how it can influence this trend of lower prices for a better product. Its influence will be, of course, in helping to bring about lower prices as measured in greater value, and not necessarily in fewer dollars.

Those of us who have studied these questions over a number of years know that the incomes of the future must be shared in a different way than they have been shared in the past.



Howard Coonley
President, Walworth Company

than belongs to it, either in higher wages or shorter hours, and if a proper balance is not kept between the producer and the consumer, trouble will surely ensue. At this time our greatest need is for whole-hearted and reasonable co-operation between all of the factors, which, in our complicated civilization, produce and distribute our wealth.

Problems of Recovery

The problems which face us today are the problems of recovery and not of depression. We must learn how to keep the good health which we have gained in the last three years, and to develop an effective vaccine against the germs of the next depression. Some changes in our social and economic order are inevitable. The last election was not primarily a contest between candidates or parties; it was a vote of "lack of confidence" in the way in which some business has been carried on in this country since the close of the Great War. Let us see to it that American business regains the confidence of the nation.

In conclusion, I would like to offer some definite suggestions which seem to me essential in carrying out successfully any permanent recovery program. I have given this problem careful con-

sideration and have incorporated my conclusions in 14 points:

1. We must work for world peace but if war comes in Europe, we must not be drawn into it. We must maintain absolute neutrality and no doctrine of the freedom of the seas must lead us into another struggle.

2. Credit control must be exercised in order to prevent inflation. Already great power has been granted to the Federal Reserve Board, but that Board must have the courage to use that power before inflation gets under way. Changes in this law may be necessary.

3. I believe there should be a definite and continuing census of unemployment to tell us the facts. Thus far there has been too much guessing. Anyone who has seen the accuracy with which Great Britain from day to day keeps unemployment records realizes how slipshod our methods have been.

4. We must have a program which will maintain purchasing power for the farmer. The last depression was largely due to the fact that farm income fell in four or five years from eleven billion dollars to five billion dollars even before the depression got under way. Thus, 25 per cent of our population were already suffering from depression.

5. There must be certain restraints on unfair competition. I am not arguing for the NRA. In the Oregon decision, the U. S. Supreme Court in a five to four decision, sustained a state law which limited the hours of men, women, and children, on the grounds that a great proportion of the industries of Washington had voluntarily established those hours. They had become the customs of the trade and chiselers must not be allowed to break them down.

6. There must be a real strengthening of our civil service, not only in the diplomatic service but in all departments, in order to attract career men.

7. There must be hearty support of the Security Act. In fact it is my own view that this Act should be extended to cover practically all of our working people.

8. Fair labor laws eliminating child labor and setting up minimum pay and maximum hours are necessary. I hope industry and labor can cooperate in bringing them about.

9. I believe there should be a real re-housing program under the FHA, with the aid of private rather than public capital. England's recovery is based to a large degree on the housing she has done.

10. I would increase efforts along the present lines to extend foreign trade.

11. A balanced budget with a surplus to pay off our debt in 30 years is essential. Merely balancing the budget is not all that is necessary. We

will probably have other depressions, so we must make arrangements to pay off our debt, in order that we can borrow again to care for unemployment.

12. There must be some revision of our tax laws. The present surplus tax law, I believe, is too drastic, but I believe the old practices were in many cases unwise. I would say, as a minimum, a change should be made in our surplus tax law to permit corporations or individuals to set up surpluses in cash or saleable securities so they can be used to maintain wage scales and dividends during depressions. I am not sure there is warrant for building up heavy reserves to build and expand plants.

13. There is great possibility of extending the use of state compacts on economic rather than physical problems. Thus far our state compacts have been compacts like the creation of the Port Authority or Boulder Dam Authority or the settlement of boundaries, but there is no reason under the Constitution why the ten textile states, for instance, couldn't set up minimum wages and maximum hours by agreement among themselves.

14. Finally, I believe in a constitutional amendment which will give to the President of the United States the power to veto or to lessen items in an appropriation bill. This would do more to stop the log rolling now going on than almost anything else. It is already a power that is exercised by many of the governments of our Commonwealths.

Variety of Oil Grades Reduced by Standards

Explaining to the members of the Purchasing Agents' Association of Northern California how the American Society for Testing Materials develops standards, John B. Terry, chief chemist, Standard Oil Company of California, gave the following typical example of an actual standardization procedure.

"Immediately after the War, that is, in 1919 or 1920," he said, "the petroleum industry awoke to the fact that there were in existence more specifications for fuel oil than there were refineries to make it. In addition to the various government requirements, it seemed that every manufacturer of burner equipment and even the operators of small steam plants had ideas about what constituted a proper fuel, with the result that an impossible number of grades was demanded.

"This matter was referred to Technical Committee C of the petroleum group of the American

Society for Testing Materials (Committee D-2) which, in conjunction with the American Standards Association, has established a working set of specifications calling for just six grades of fuel, ranging from the lightest distillate, suitable for household heating furnaces, to the heavy type of residual fuel such as that used in locomotive and marine boilers. This means, of course, that the purchaser of fuel oil now has his choice of six grades instead of an almost incredible number, and, while provision is made for minor variations, such as pour point, the basic requirements remain unchanged.

"Do not think that this result was accomplished over night—as a matter of fact, the work on this particular project has been going on for several years.

"I do not wish to leave with you the impression that all you have to do to obtain a new standard or a revision of an old one is to write a letter. These standards mean work and plenty of it, not only on the part of committee chairmen but by every member of the subcommittee."

ASA Board, Standards Council Act on Standards and Policies

ACTION was taken on problems brought before the Standards Council and the Board of Directors during the annual meetings as follows:

Standards Council

Underwriters' Laboratories was continued as proprietary sponsor for Specifications and Standards for Electrical Devices and Materials with Relation to Fire and Casualty Hazards (C33), subject to any future action by Standards Council on the general problem of proprietary sponsorships.

Letter ballots for final approval of the following standards were authorized:

Dry Cells and Batteries (C18)
Methods of Testing Electrical Insulating Oils (C59.2)
Railway Motors and Other Rotating Electrical Machinery on Rail Cars and Locomotives (C35)
Railroad Highway Grade Crossing Protection
Specifications for Bronze Trolley Wire (H22.1) and Copper Trolley Wire (H22.2)
Uncoated Wrought Iron Sheets (G23)
Weather Resistant (Weatherproof) Wire and Cable—URC Type (C8.18)

Projects under authority of the Building Code Correlating Committee were authorized on:

Administrative Requirements for Building Codes
Building Code Requirements for Excavations and Foundations
Building Code Requirements for Iron and Steel

Consideration of a report on the desirability of continuing the proprietary sponsorship method for projects which involve regulatory standards was postponed for action at the next Standards Council meeting, to be held not later than March 31, 1937.

A report suggesting ways and means of expediting the procedure of the American Standards Association was approved in principle. Semi-annual reports on all projects will be required.

A report suggesting ways of expediting the work of the American Standards Association was approved in principle. Regular semi-annual progress reports on all projects will be required.

Board of Directors

The Standards Council and the Board of Directors named five organizations which will be

invited to nominate members on the Board of Directors for 1937-39. These are:

American Institute of Electrical Engineers
Association of American Railroads
American Petroleum Institute
American Society of Mechanical Engineers
Cast-Iron Pipe Research Association

A budget of \$130,000 for 1937, recommended by the Finance Committee, was approved by the Board.

Retaining legal counsel was authorized. Legal protection of the term "American Standards" and the ASA symbol was considered.

A project on Principles Underlying Valid Certification and Labeling of Commodities was authorized through the action of the Standards Council and the Board of Directors (see page 318).

Both the Council and the Board heard a report on an informal conference between the ASA staff and representatives of the British Standards Institution on the possibility of cooperating in development of standards in Argentina (see page 328).

Building Code Correlating Committee to Organize Work on Foundations

Safety and permanence of foundations, soil-bearing capacities, and extent of footings and foundations will be the subjects considered by the Sectional Committee on Building Code Requirements for Excavations and Foundations just authorized by the Standards Council. It is expected that the American Society of Civil Engineers will take charge of the administrative direction of the committee's work.

Recent research in soil bearing capacities will have an effect on the work of the committee.

Organization of the sectional committee to prepare standards for excavations and foundations will be undertaken soon.

High Lights of ASA Safety Work

*Excerpts From 1936 Annual Report,
Safety Code Correlating Committee*

by

C. E. Pettibone

*Chairman, Safety Code
Correlating Committee*

IT seems desirable to present a picture of the trends which are taking place in the continued development of the safety code program.

It will be remembered that in the early years of ASA work the safety code program assumed a very large proportion of the total project work of the Association. An extensive program was launched and during the intervening years this program has been largely completed, many of the standards developed under the program having been revised from time to time. This, however, does not mean that the safety code work is destined to assume a relatively unimportant place in the national standardization movement. There are still important gaps to be filled as far as industrial safety codes are concerned, and undoubtedly there will be an expansion of the ASA industrial safety code program because of increased activity on the part of state and municipal governmental agencies in the development and enforcement of safety codes. A large number of states not previously classified as industrial states are for the first time developing safety code programs. The success of the ASA safety code program to date will encourage these governmental agencies to use the facilities offered by the ASA for working out their accident prevention problems as far as standardization lends itself to these problems.

Another important trend in industrial safety work is preparing performance specifications for safety devices. Most of the present safety codes require approved devices but give no specifications on which governmental agencies, testing laboratories, and individual industrial concerns can judge the merits of devices submitted.

During the preparation of safety codes, sectional committees develop many valuable accident prevention ideas not suitable for inclusion in the codes. It has been suggested that such material should be made available in some form so that those using American Standard safety codes may have a complete picture of all methods which might be used in eliminating accident hazards in the various fields covered by the codes.

Two new phases of the safety code program recently launched through the ASA are assuming increasing importance and seem destined to play a large part in ASA affairs. I refer to safety standards in the highway traffic field and in the occupational disease field.

Highway Safety Is National Problem

There is a very definite recognition of the fact that the elimination of highway accidents is a national problem and the best results can be obtained by coordinating the efforts of all groups through one central clearing house.

Within a few weeks a report will be released which covers fundamentals relating to the design and construction of exhaust systems, prepared under the auspices of the Sectional Committee of the Safety Code for Exhaust Systems. This report will form the basis of a series of safety codes covering a number of industrial processes. The opportunities for service in this field are very

great. The plans for conducting a National Conference on Silicosis, by the U. S. Department of Labor, the organization by industry of the Air Hygiene Foundation, the activities of state governmental agencies and insurance groups, and the special attention which has been given the subject of occupational diseases by individual industries are making all of these groups especially conscious of the need for standards in this field. It is essential therefore that the ASA be in a position to offer adequate facilities to carry forward an extensive program in this field. Undoubtedly time will show that the program of standards in the field of occupational diseases will be as large, if not larger, than that which has already been carried forward through the ASA in industrial safety.

A number of industrial groups have become members of the Correlating Committee during the past year: the American Iron and Steel Institute, the ASA Telephone Group, and the Automobile Manufacturers Association.

The continued expansion of the program in the special fields discussed may eventually require a complete reorganization of the Safety Code Correlating Committee so that each of these special phases of the program can be placed in the hands of those best qualified to guide them.

A.S.T.M. Publishes Coal Standards

Twenty-four standard specifications and methods of testing coal and coke have been issued by the American Society for Testing Materials. All of the A.S.T.M. coal and coke standards are included in their latest approved form.

Methods are given for sampling, sieve and screen analysis, and designating size, and for tests covering fineness, grindability, cubic foot weight, shatter, etc. Specifications cover gas and coking coals, foundry coke, sieves and screens for testing, and classification of coals by rank and by grade.

The two specifications for classification of coals were developed by the ASA Sectional Committee on Classification of Coals, sponsored by the A.S.T.M., and have been approved by the American Standards Association as American Tentative Standards. These were described in the November issue of *INDUSTRIAL STANDARDIZATION*, p 273.

Copies of the publication, 145 pages, heavy paper cover, may be obtained from the American Society for Testing Materials, 260 S. Broad Street, Philadelphia, at \$1.25 each. On orders for ten or more copies, special prices are in effect.

Members of Safety Code Correlating Committee

The Safety Code Correlating Committee, general administrative committee in charge of all safety work under the American Standards Association, brings together experts representing many different organizations interested in safety work. Members of the committee are:

C. E. Pettibone, National Association of Mutual Casualty Companies, *Chairman*

L. F. Adams, National Electrical Manufacturers Association, *Vice-Chairman*

Cyril Ainsworth, American Standards Association, *Secretary*

American Gas Association, **James B. Douglas**, *John V. Postles (alt.)*

American Iron and Steel Institute, **Harry A. Schultz**

American Petroleum Institute, **H. N. Blakeslee**, *D. V. Stroop (alt.)*

American Society of Mechanical Engineers, **T. A. Walsh, Jr.**, *H. H. Judson (alt.)*

American Society of Safety Engineers, Engineering Section, National Safety Council, **A. S. Regula**, *G. E. Sanford (alt.)*

Automobile Manufacturers Association, **Wm. J. Cronin**, *David C. Fenner*

Electric Light and Power Group, **C. R. Beardsley**, *A. B. Campbell (alt.)*

International Association of Government Labor Officials, **John H. Hall, Jr.**, *T. P. Kearns*, *J. P. Meade (alt.)*

International Association of Industrial Accident Boards and Commissions, **Charles E. Baldwin**, *O. B. Chapman (alt.)*, **Sharpe Jones**, *George P. Keogh*, *Wm. M. Knerr (alt.)*, **Raymond C. Nicaise**, *W. H. Nickels, Jr. (alt.)*, **John Roach**, *T. A. Wilson (alt.)*, **Verne A. Zimmer (alt.)**

National Association of Mutual Casualty Companies, **C. E. Pettibone**, *David S. Beyer (alt.)*

National Board of Casualty and Surety Underwriters, **Holger Jensen**, *W. M. Graff (alt.)*

National Electrical Manufacturers Association, **L. F. Adams**, *Frank Thornton, Jr. (alt.)*

National Fire Protection Association, **H. L. Miner**, *C. W. Rulon (alt.)*

National Industrial Conference Board

National Safety Council, **W. Dean Keefer**, *W. S. Paine (alt.)*

Telephone Group, **J. R. Shea**, *W. P. Elstun (alt.)*

U. S. Department of Commerce, National Bureau of Standards, **M. G. Lloyd**, *John A. Dickinson (alt.)*

U. S. Department of Labor, **William Green**

U. S. Department of Labor, Bureau of Labor Statistics, **Sven Kjaer**, *Wm. H. Klinehanse (alt.)*

U. S. Department of Labor, Division of Labor Standards, **Verne A. Zimmer**, *R. P. Blake (alt.)*

U. S. Treasury Department, U. S. Public Health Service, **Dr. R. R. Sayers**, *Dr. P. A. Neal (alt.)*

Technical Subcommittee Reports Findings on Coal Classifications

The Technical Committee on Coal Classification, a subdivision of the ASA Sectional Committee on Classification of Coals, held a series of meetings in Pittsburgh on October 19 and 20. The sectional committee is under the administrative direction of the American Society for Testing Materials.

The Subcommittee on Origin and Composition of Coal and Methods of Analysis, after several years of intensive study, reported that the present knowledge of types of coal does not permit the preparation at this time of specifications for classification of coals based on the origin of plant components comprising various types or varieties of coal such as common bright coal, splint coal, or cannel coal. The Technical Committee agreed that it would be desirable to have definitions of coal varieties, other than those of rank and grade, such varieties to be defined for commercial purposes, and will recommend that such definitions be prepared by the Technical Committee on Nomenclature.

Boundary Lines for Coals

The Subcommittee on Boundary Lines for Coal Classification reported progress in a statistical study of analyses of coals of unusual physical and chemical characteristics occurring in the high volatile bituminous and subbituminous ranks, with a view of preparing a suitable note for inclusion in the Tentative Specifications for Classification of Coals by Rank (A.S.T.M. Designation D 388-36 T), indicating that the specifications do

not apply to such unusual coals. It was pointed out that these coals do not occur abundantly, are of relatively minor commercial importance, and can be excluded from the system of classification by rank by reference to their fixed carbon and calorific values.

The Subcommittee on Correlation of Scientific Classification with Use Classification reported completion of charts giving factors recommended for consideration in the selection of coal for various uses. These charts give the weighted opinions of many authorities concerning the relative importance of various chemical and physical properties in selection of coal for specific uses. Plans were made to make these charts available by publication in the near future as an information report of the subcommittee.

The Subcommittee on Defining Coal Sizes and Friability recommended revisions of the Tentative Specifications for Classification of Coals by Grade (A.S.T.M. Designation D 389-34 T) to include designating the size of coal in accordance with the method as given in the Tentative Method for Designating the Size of Coal from its Screen Analysis (A.S.T.M. Designation D 431-36 T). This recommendation was approved by the Technical Committee.

H. J. Rose, Senior Industrial Fellow, Mellon Institute, is chairman of the Technical Committee on Coal Classification and A. C. Fieldner, Chief, Technologic Branch, U. S. Bureau of Mines, is chairman of the Sectional Committee on Classification of Coals.

ASA Authorizes Work On Standard "Approvals"

Work on standards to determine the reliability of "approval," "certification," and "listing" systems used in marking consumer goods will now be started in a sectional committee of the American Standards Association, according to a decision made by the ASA Board of Directors and Standards Council at the Annual Meeting.

The project was requested by the Association of Consulting Chemists and Chemical Engineers, who said that the value of approvals and certifications now being used is being dissipated because of a few irresponsible endorsements "that claim a significance they do not possess."

The Chemists' Association in requesting the

project suggested the following points for inclusion in any standards which might be set up:

1. A clear statement of the agencies backing any plan of approval;
2. Adequate independent sampling and testing of the product to determine its conformity with definite, published standards;
3. Systematic re-examination to insure continuing conformity; records of test to be publicly available; and
4. Compliance with these principles to be indicated on labels or tags.

These standard practices will be developed by a committee on which consumers, producers, distributors, and advertisers will cooperate.

Industrial Trends Influence Changes In Three Magnet Wire Standards

by

M. A. Kent

*Chairman, Technical Committee on
Magnet Wire, Sectional Committee
on Specifications for Insulated
Wires and Cables*

MAGNET wire to the layman is just one of many types of conductors of electricity used in our modern world today. All insulated wire used in winding magnetic coils whether they be separate coils or parts of generators or motors is known as magnet wire. To the engineer it is copper wire electrically insulated with enamel, silk, cotton, or paper, or a combination of these, and manufactured to very close physical dimensions. To the designing engineer of electric generators, motors, transformers, and instruments, it is the heart of all electrical equipment.

Magnet wire is as necessary and important to this Electric Age in which we live as oxygen is to life. It has worn this crown of importance since Michael Faraday discovered in 1821, and later perfected, the transformation of magnetic (electrical) energy into physical energy. Faraday tore into strips his wife's silk dress, wrapping the silk strips around the crude copper wire to provide the insulated wire (magnet wire) he needed.

Insulated wire now used in magnet windings of various kinds resembles the Faraday wire in fundamentals only. Thousands of different conditions of manufacture of electrical equipment, operation, and cost of this equipment must be met today. To accomplish this, magnet wires of a variety of sizes and combinations are available, ranging from enameled wire the diameter of a hair, to

THE revisions just approved by the American Standards Association in the standard specifications for magnet wire should make these three specifications more acceptable than ever before to manufacturers and purchasers of insulated wire, says M. A. Kent, General Cable Corporation, in this article. Mr. Kent is chairman of the Technical Committee on Magnet Wire of the ASA Sectional Committee on Specifications for Insulated Wires and Cables.

The insulation requirements of these specifications codify the best experience in use and manufacture of insulated wire, Mr. Kent states, but the committee hopes that wide use of the specifications will bring in suggestions for new changes as experience indicates better practice.

paper or cotton-insulated wire one-half inch in diameter. The space available for the windings, temperatures at which the apparatus will operate, atmospheric conditions, operating voltage, are all important factors in determining the type and amount of insulation used. An enamel coating gives high insulating values, together with relatively thin walls. A wrapping of silk insulation gives lower insulating values than enamel but affords reasonably thin walls. A wrapping of cotton gives approximately the same insulating values as silk but requires more space than either silk or enamel. Paper offers fair insulating qualities but necessitates considerably thicker insulating walls.

Although these many variations are required to meet all conditions, most kinds of magnet wire fall into three general types—enameled, cotton and silk-insulated. Material specifications have, therefore, been formulated and are being used for these three types.

Experts Prepare Revisions On Magnet Wire Standard

Experts on the Technical Committee who were responsible for preparing the revised specifications on magnet wire are:

M. A. Kent, General Cable Corporation, *Chairman*
F. W. Andrew, Consulting Engineer
E. W. Clark, General Electric Company
R. H. Dagleish, Capitol Traction Company
E. H. Hammond, American Electrical Works
Dean Harvey, Westinghouse Electric & Manufacturing Company
T. M. Hunter, American Transformer Company
F. B. Hynes, Crocker-Wheeler Elec. Mfg. Company
T. S. Johnson, Anaconda Wire & Cable Company
Kenneth MacKay, Acme Wire Company

The first general industry specifications covering these three types of wires were drafted by a committee of the American Society for Testing Materials during the middle twenties and were adopted in December, 1927, as the industry standards by the American Institute of Electrical Engineers. In 1928 they were approved as standards by the American Standards Association.

New Requirements

Realizing that the art of manufacturing magnet wires had progressed, and that mass production of motors and generators had introduced additional requirements in magnet wires, the Magnet Wire Committee for the ASA Sectional Committee on Insulated Wires and Cables (C8) recently recommended revisions and additions to these three specifications. The revised specifications have been approved by the ASA and are published as:

Specification for Cotton Covered Round Copper Magnet Wire—C8.5-1936
Specification for Silk Covered Round Copper Magnet Wire—C8.6-1936
Specification for Enameled Round Copper Magnet Wire—C8.7-1936

It is recognized that no specification can be the last and final word on any product and this is particularly true with magnet wires. New insulating materials are being developed, changed technique in coil manufacturing is introducing new problems, and mass production is altering relative costs, all of which go to make for greater variety in magnet wires and more exacting requirements and greater uniformity. However, these latest specifications should cover at least 75 per cent of the requirements of manufacturers of electrical equipment. They should guide the manufacturer and user of magnet wires to a com-

mon understanding of the other's requirements and limitations; and should guarantee, when used as manufacturing and purchasing specifications, a uniformly satisfactory product not only from the standpoint of physical characteristics but also from the standpoint of usability and satisfactory service in operation.

Watches Trend

The Magnet Wire Committee aims to observe closely the trend and developments in industry which may make advisable further revision of these specifications and the drafting of new specifications for magnet wires of types other than those covered in these three. This committee urges the use of these specifications wherever possible by manufacturers and purchasers of magnet wire in all fields. If these specifications do not cover the special requirements of individual users of magnet wire, it is suggested that they be amplified by the addition of paragraphs covering the individual purchaser's requirements. In this way the specifications will be more generally used by the industry with greater benefit to both manufacturer and purchaser.

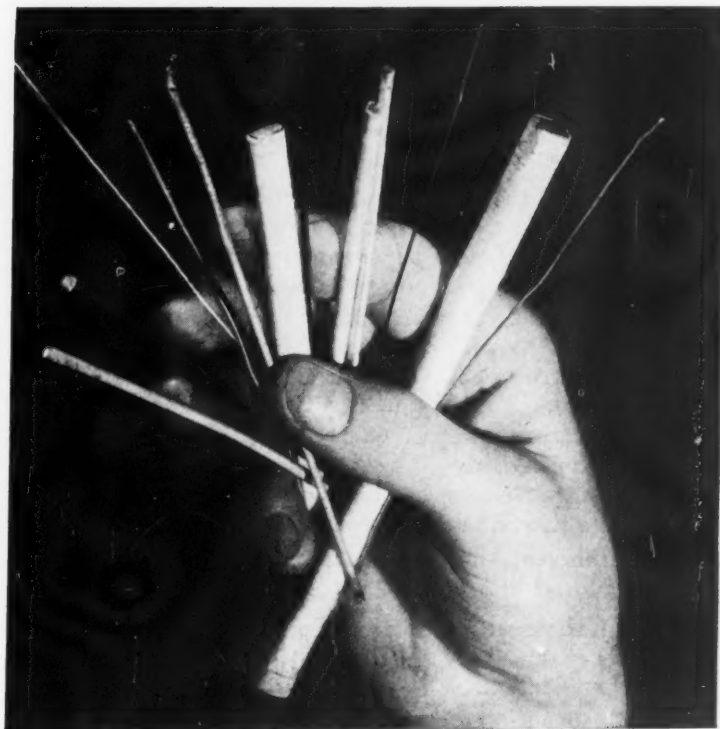
In order that the committee may build up its file for use in future revisions, constructive criticism and suggestions on any of these three specifications will be greatly appreciated.

In the specifications for Cotton Covered Round Magnet Wire (C8.5-1936) the principal changes, other than re-arrangement and editorial alterations, consist of a re-grouping of sizes between No. 22 and No. 35 AWG. Heretofore these were grouped together, whereas in this revised specification they are broken into two groups, sizes No. 22 to 24 AWG in one group and sizes No. 25 to No. 35 AWG in the other group. There has been added a paragraph on hardness of insulated copper wire after the removal of the insulation. The hardness is controlled by elongation limitations. It is recognized that elongation does give a fair indication of the true hardness of the wire but that it does not indicate the relative windability; that is, "springiness" or resistance to bending, which it is hoped will be accomplished by some sort of a "springiness" test.

Several of the manufacturers and users of magnet wire are cooperating with us by carrying on experiments on test equipment designed to give a true indication of windability of magnet wire. It will take another year or two to develop adequate, reliable information which will enable the writing of a specification covering this factor. It was the long time required to secure reliable information that forced the use of the elongation test in these present specifications. The committee recognized that the elongation test did not give all that

The heart of all electrical equipment — insulated copper wire. Enamel, silk, cotton, or paper, or a combination of these materials, are used to insulate the wire.

New developments in manufacture of this "magnet wire" make changes in the standards essential.



was desirable but felt that it was the best and most reliable test available at the present time.

In the specification for Silk Covered Round Copper Magnet Wire (C8.6-1036), changes similar to those just discussed have been made. In addition to these the minimum permissible addition to the diameter of the bare wire by the insulation has been decreased from 75 per cent to 60 per cent of the measured maximum. This was done because of the unavoidable variation in the diameter of natural silks available for the insulation of these wires. Practically, this change means little to the user. Under the old requirement it was sometimes impossible in manufacture to adhere strictly to the specifications even with the use of the best quality commercial silk.

Most Changes for Enameled Wire

The greatest number of changes have been made in the specification for Standard Enameled Round Copper Magnet Wire (C8.7-1936). A general re-arrangement of the specification has been made, but probably the most important change has been the far better graduation of insulation thickness requirements than was found in the old specification. Each American Wire gauge size

covered by the specification is listed and its minimum and maximum addition of enamel coating given in Table I.

To bring the paragraph covering flexibility of enamel more in line with the present commercial practice, the diameter of the mandrels, around which the enameled wire must successfully bend, have been reduced approximately 25 per cent from the previous requirements.

Re-grouping and other slight changes in the requirements covering softening of the enamel upon heating have been made. The electrical test requirements have been increased and a general re-grouping of the sizes gives a much more uniform electrical test in terms of volts per mil of insulation thickness. There has been added an additional electrical test called "twist test" which specifies definite voltage breakdown between two insulated twisted wires. This test was put in because similar tests are used quite generally by certain groups of purchasers.

There was added a continuity test to control the uniformity and continuity of the enamel coating.

To this specification has also been added the hardness test explained previously.

With these changes the three specifications should be more acceptable to a larger group of

Agreement of Many Interests Results in Revised Standards

Agreement by a widely representative group making up the membership of the Sectional Committee on Insulated Wires and Cables brought about the approval of the revised standards on magnet wire. This committee, under the administrative direction of the Electrical Standards Committee, works according to the regular procedure of the American Standards Association. This procedure brings together manufacturers, users, technical experts, and distributors to pool their various experiences and ideas and agree upon the provisions to be standardized.

Members of the Sectional Committee on Insulated Wires and Cables are:

F. M. Farmer, American Society for Testing Materials, *Chairman*

G. M. Haskell, National Electrical Manufacturers Association, *Vice-Chairman*

W. F. Davidson, Electric Light and Power Group, *Secretary*

American Institute of Electrical Engineers, *W. A. Del Mar, E. B. Meyer, J. B. Whitehead*

American Society for Testing Materials, *W. H. Bassett, Jr., R. W. Chadbourne, F. M. Farmer*

American Transit Association, *C. R. Harte, F. J. White*

Association of American Railroads—Engineering Division—Electrical Section, *C. R. Troop*

Association of American Railroads—Engineering Division—Signal Section, *J. J. Corcoran*

Association of Railway Electrical Engineers, *J. R. Sloan*

Electric Light and Power Group, *R. N. Conwell, W. F. Davidson, C. T. Sinclair, A. B. Campbell (alt.)*

National Board of Fire Underwriters, *A. H. Nuckolls*

National Electrical Manufacturers Association, *W. H. Bassett, Jr., G. M. Haskell, C. O. Hull, Moss A. Kent, E. D. Youmans*

National Fire Protection Association, *R. B. Shepard*
National Municipal Signal Association, *Stanton S. Hertz, Dr. M. G. Lloyd (alt.)*

Society of Automotive Engineers, *F. W. Andrew, W. S. Haggott*

Telephone Group, *C. S. Gordon*

U. S. Department of Commerce, National Bureau of Standards, *Dr. J. Franklin Meyer*

U. S. Navy Department, Bureau of Engineering, *Officer in Charge, Specification Section, Design Division; Laboratory Officer, Material Laboratory*

U. S. War Department, *C. F. Robinson*

Members-at-Large, *Harvey Dean, Philip Torchio*

manufacturers and purchasers of magnet wires than were the previous specifications.

Our committee hopes information secured from the use of these specifications by both purchasers and manufacturers of magnet wire will enable it, in the next year or two, to again revise the specifications so that they will be still more acceptable and generally usable to the industry.

Add Galvanizing Requirements In Steel Pipe Specifications

A revision of one specification for electric-fusion-welded steel pipe, and recognition as standard of three tentative standards, have been approved by the American Standards Association.

The revision consists of the addition of requirements covering galvanizing of welded and seamless steel pipe and a minor change in the minimum elongation for open-hearth or electric furnace seamless low carbon grade of pipe in the American Standard Specifications for Welded and Seamless Steel Pipe (B36.1-1936; A.S.T.M. A53-36).

The three tentative standards which have been accepted as standard rather than as tentative standard are Specifications for Lap-Welded and Seamless Steel Pipe for High-Temperature Service (B36.3-1936; A.S.T.M. A106-36), Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 30 in. and Over) (B36.4-1936; A.S.T.M. A134-36), and Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 8 in. to but not including 30 in.) (B36.9-1936; A.S.T.M. A139-36).

New Australian Standard For Soldering Sockets

The Standards Association of Australia has just published a new standard specification for Electric Cable Soldering Sockets. The standard applies to sockets for cables from 0.003 to 1.000 sq in. in sectional area. The new publication replaces a tentative standard issued in 1929.

The tables giving dimensions of cast-lug sockets and tubular lug sockets have been completely revised and amended, and a few additional amendments have been made to bring references up to date.

The specifications cover definitions and classification, material dimensions, and finish of cast lug and tubular lug sockets, material and finish of clamp sockets and their dimensions.

Copies may be ordered through the American Standards Association.

International Developments In Standardization Work

by
John Gaillard

*Mechanical Engineer, American
Standards Association*

***Report on ISA Committee
Meetings, Budapest, September,
1936***

***ASA Representation Gives
American Industry Voice in
International Decisions***

A SERIES of meetings was held by the International Standards Association at Budapest during the first two weeks of September 1936, upon the invitation of the national standardizing body in Hungary. The meetings were attended by 168 delegates of 16 national standardizing bodies, including the American Standards Association.

Meetings of twelve ISA technical committees and subcommittees were followed by a meeting of the ISA Council. The present chairman of the Council is the president of the Swedish national standardizing body, Nils Frederiksson. The six council members represent the national standardizing bodies in France, Germany, Japan, Hungary, Norway, and Roumania.

A brief report on the results of the committee meetings follows.

Aeronautics, Technical Committee ISA 20—American industry is not represented on this committee, but developments are regularly reported by the ASA office to the Society of Automotive Engineers.

Automobiles, Technical Committee ISA 22—American industry is not represented on this committee, but the ASA office has kept the Society of Automotive Engineers informed about developments.

Among the subjects discussed at Budapest was Roller Chains. On behalf of ASA committee B29 on Roller Chains and Sprockets, the ASA office submitted to the ISA committee memoranda concerning the American Standard set up in this field,

especially in connection with certain discrepancies between American and British practice.

Proposals for international unification will soon be circulated by the ISA committee.

Cinematography, Technical Committee ISA 36—This committee dealt primarily with the question of the 16-mm sound film in an effort to reach international agreement on the location of the sound track for which the Germans and some other Continental countries had intended to adopt a standard different from the American.

At the Budapest meeting where American industry was represented by S. K. Wolf, president-elect, Society of Motion Picture Engineers, the American Standard was adopted as an international recommendation for unified practice, thus securing complete interchangeability of 16-mm sound-film and equipment the world over.

It may be recalled that the first important move toward this decision was made at the ISA meeting in Paris, 1935, where American industry was represented by George Friedl, Jr., of Electrical Research Products, Inc., and J. W. McNair of the ASA staff.

Furthermore, upon the insistence of American industry, voiced through the ASA office, the scope of ISA committee 36 was restricted at the Budapest meeting to Cinematography while the organization of a separate ISA technical committee on Photography was proposed. American industry was invited to take charge of the secretariat of

this new committee, which proposal is now under consideration in this country.

Raw Materials for Paints, Technical Committee ISA 35—Proposed methods of testing and analysis of raw materials for paints were discussed. A number of proposals will be circulated among the national bodies, for their acceptance.

American industry is represented on this committee by Dr. H. A. Gardner, Chemical Engineer of the Institute of Paint and Varnish Research. Upon Dr. Gardner's request, the ASA office submitted to the ISA committee by radiogram the suggestion that the A.S.T.M. standards for turpentine (D233-33—Methods of Sampling and Testing Turpentine, and D13-34—Specifications for Spirits of Turpentine) be considered as the basis for internationally unified practice.

Dr. Gardner's comments on material circulated by the secretariat of this ISA committee in advance of the Budapest meeting had already been transmitted to the committee by the ASA office.

Preferred Numbers, Technical Committee ISA 32—ASA committee Z17, while developing an American Standard for Preferred Numbers, was kept in close touch with the work of this ISA committee through the ASA office. The decimal series of Preferred Numbers laid down in the American Standard is identical with the series recommended by the ISA committee.

At the Budapest meetings some changes in details of the proposed ISA recommendation were discussed. However, these will not affect the recommended values themselves.

Steel and Iron, Technical Committee ISA 17—The main topics discussed were the designation of qualities of steel and methods of testing. A questionnaire on the notched bar test, circulated some time in advance of the meeting, was referred by the ASA office to F. N. Speller, Metallurgical Engineer, National Tube Company, the American expert on this ISA work. It was submitted to the ISA committee with Mr. Speller's advice.

Textiles, Technical Committee ISA 38—This committee, which was recently organized, tentatively discussed the program of work. With a view to the vast field to be covered it recommended that the project be taken care of by two separate, but closely coordinated, secretariats.

The ASA office has taken steps to find out whether any American groups wish to take an active part in this project.

In the meantime, the A.S.T.M. standard for the designation of direction of twist in yarns and cords has become an ISA recommendation for international unification. Copies of this standard were submitted some time ago by the ASA office to the other ISA members and agreement on this point was reached at the Budapest meeting.

Machine Tools, Technical Committee ISA

39—This committee, organized in the course of 1936, held its first meeting in Budapest. The question of American participation has been laid before the ASA Mechanical Standards Committee and the National Machine Tool Builders Association. The MSC has decided to postpone making a recommendation until after the NMTBA has stated its attitude. A reply from the machine tool builders on this subject is still pending.

The Budapest meeting adopted a tentative proposal to recommend an international series of machine tapers, comprising a number of Morse tapers for the medium sizes, supplemented by metric tapers for the smaller and the larger sizes.

Furthermore, it was proposed to recommend for international adoption the milling machine spindle noses developed by the National Machine Tool Builders Association and generally used in this country. (Incidentally, we understand that this standard, which has been in use here since 1927, will soon be submitted to the ASA for approval as an American Standard.)

Finally, the ISA committee on Machine Tools placed on its program flanged connections between electric motors and driven machinery, such as machine tools, pumps, etc.

Tools, Technical Committee ISA 29—ASA sectional committee B5, on Small Tools and Machine Tool Elements, is being kept informed about developments in this ISA committee.

The Dutch national standardizing body recently suggested that this ISA committee take up work on grinding wheels.

The ASA office referred this suggestion to the Grinding Wheel Manufacturers Association, which recommended that the American Standard Safety Code for the Use, Care, and Protection of Abrasive Wheels (B7-1935) and the Simplified Practice Recommendation 45-32 on Grinding Wheels, which covers wheel shapes and dimensions, be used as a basis for international unification.

However, the Grinding Wheel Manufacturers Association was not in favor of standardization work concerning the grain, bond, or grade of grinding wheels.

The ISA committee has been informed about this attitude and copies of the data in question have been placed at its disposal.

Upholstery Materials, Technical Committee ISA 40—This new committee was started under the title "Upholstery Hair." It was organized at the request of the Hungarian body. The question of American participation was referred by the ASA office to the National Association of Curled Hair Manufacturers of the United States, and B. H. Blocksom, president, Blocksom and Company was appointed the American expert.

Mr. Blocksom submitted a memorandum on the use of hog hair in upholstery which was trans-

mitted by the ASA office to the ISA committee for its consideration.

At the Budapest meeting the committee decided to widen the scope of its work to Upholstery Materials. The discussion concerned mainly the program of work proposed by the Hungarian body covering the classification, testing, and supply of upholstery hair.

Other Committees — Other ISA technical committees which held meetings at Budapest were those on Drawings (ISA 10) and on Terminology, and the subcommittee on Spring Washers (ISA 2b).

ISA Council Meeting

The council discussed, among other general matters, the place and time of the next series of ISA meetings.

The German national body has invited the ISA members to meet in Berlin, in 1937. The French national body has suggested that the meetings of a number of ISA technical committees be held in Paris, during the second World Petroleum Con-

gress, June 1937. This applies particularly to committee ISA 28 on Nomenclature and Methods of Tests of Petroleum Products of which the ASA holds the secretariat.

The ASA office is in correspondence on this subject with the French and German bodies. After consultation with Dr. R. P. Anderson, the American representative on committee ISA 28, it has informed these bodies that it intends to call a meeting of committee ISA 28 at Paris during the second World Petroleum Congress. A tentative invitation to this effect has been sent out.

The French and German bodies and the ISA secretariat have also been informed that the ASA does not yet know what American representatives, if any, will attend the ISA meetings in 1937, and that consequently the ASA has no preference for either Paris or Berlin as the place of meeting. It does, however, consider it important that if meetings are held in both cities, the dates should be scheduled closely enough together to avoid the necessity for American attendants to while away considerable time between the two series. This matter is still pending.

New Subcommittees Expand Work Of ASA Consumer Committee

Shoes, electric refrigerators, and description of the color fastness of materials will be the next consumer problems to be considered by the Advisory Committee on Ultimate Consumer Goods, it was decided at the committee's meeting November 30.

Subcommittees were authorized to make a survey of any work which may already have been accomplished in these fields and of the technical problems involved in setting up standards which the ultimate consumer can understand and use.

Work on standards for hosiery, bedding, and upholstery is now going forward in subcommittees of the Advisory Committee and the Committee has already recommended a standard for designating the shrinkage of woven cotton yard goods to the Standards Council for approval.

Broad surveys have been found necessary by the subcommittee on bedding and upholstery, and it has reported that it will be some time before it can make any definite recommendations.

It has found it necessary to determine what the existing state laws on bedding require, and it hopes that its work may result in making these requirements uniform. It is studying the possibility of setting up standards for the contents of bedding, from the standpoint of health require-

ments as well as to prevent fraud. It is also considering requirements for resiliency and for rating coverings of bedding according to their durability.

The subcommittee expects to bring in all interested groups and agencies in order to set up satisfactory standards which will be of value to the consumer. The importance of the work on bedding is indicated, the subcommittee said, by 750 convictions in the State of New York, alone, for gross misrepresentations of the quality of bedding and upholstery and for selling unsanitary bedding.

The new subcommittee considering standards for shoes will start its work by studying proposals for work shoes and will then take up recommendations for children's shoes, according to the recommendations of the Advisory Committee.

The Advisory Committee on Ultimate Consumer Goods is the general committee coordinating work on consumer standards under the American Standards Association. Its membership consists of representatives of leading consumer organizations as well as retail and distributor groups. H. W. Brightman, vice-chairman, Merchandising Division, National Retail Dry Goods Association and vice-president in charge of merchandising, L. Bamberger & Co., Newark, is chairman.

Experts Named to Advise On Suitable Working Stresses

A SECTIONAL COMMITTEE to consider standard building code requirements for iron and steel was authorized and appointment of an Advisory Committee of experts to give authoritative information on working stresses of building materials was announced at the Standards Council meeting December 9.

The sectional committee will consider standards on requirements for iron and steel in building construction, and establishment of suitable working stresses for inclusion in building codes.

The American Institute of Steel Construction and the American Society of Civil Engineers have been invited to act together to take administrative responsibility for the committee.

The Advisory Committee, made up of engineers engaged in research, testing, and use of construction materials, was organized because the Building Code Correlating Committee believes that the question of working stresses is primarily an engineering problem. The committee is expected to cooperate with sectional committees working on standard requirements for all types of building materials.

"While it is expected that its recommendations will generally prevail," said Rudolph P. Miller, chairman of the Building Code Correlating Committee, in announcing appointment of the Advisory Committee to the Standards Council, "if any sectional committee, for good and sufficient reason, questions them or wishes to offer different suggestions, opportunity for cooperation between the two committees will be given."

F. E. Schmitt, editor, *Engineering News-Record*, is chairman of the Advisory Committee. The other ten members are:

Theodore Crane, Professor of Architectural Engineering, Yale University, New Haven, Conn.

Henry D. Dewell, Consulting Civil Engineer, San Francisco, Calif.

Almon H. Fuller, Professor of Civil Engineering, Iowa State College, Ames, Iowa.

Clifford M. Stegner, Commissioner of Buildings, Cincinnati, Ohio.

Clarence H. Sutherland, Professor of Civil Engineering, Lehigh University, Bethlehem, Penn.

Watson Vredenburg, president, Hildreth & Co., Inspection Engineers, New York.

Wilbur J. Watson, Civil Engineer and Architect, Cleveland, Ohio.

Herbert L. Whittemore, chief, Engineering Mechanics Section, National Bureau of Standards, Washington.

Wilbur M. Wilson, Research Professor, Structural Engineering, University of Illinois, Urbana, Ill.

Morton O. Withey, Professor of Mechanics, University of Wisconsin, Madison, Wisc.

Other sectional committees on various building materials are being considered by the Building Code Correlating Committee, among them one on masonry requirements which may be correlated with the work of the Sectional Committee on Recommended Practice for Brick Masonry (A41). It is also hoping to formulate, as a working basis of its own, and also as a recommendation to municipalities, an arrangement of the various subjects dealt with in building codes.

ASA Approves Changes In Steel Specifications

Changes in three of the four steel standards approved by the American Standards Association in June have just been approved and made effective. The revisions in the Specifications for Steel for Bridges (G18-1936; A.S.T.M. A 7-36) and for Buildings (G19-1936; A.S.T.M. A 9-36) consist in certain changes in the requirements for surface imperfections and methods to remove them.

The change in the Specifications for Structural Rivet Steel (G21-1936; A.S.T.M. A 141-36) consists in altering the minimum requirements for sulphur from not over 0.045 per cent to not over 0.05 per cent.

Copies of the revised specifications may be obtained from the American Standards Association at 25 cents each. Members of the ASA are entitled to a 20 per cent discount.

Moskovics Named Chairman Of Dictograph Board

F. E. Moskovics, member of the Board of Directors of the American Standards Association, has just been made chairman of the Executive Committee of the Dictograph Products Company.

Mr. Moskovics, nominated for membership on the ASA Board by the Society of Automotive Engineers, has been chairman of the Board of the Marmon-Herrington Company, and vice-president, Frederick H. Levy Company, New York. He has been a member of the ASA Board since 1929, and served as vice-president from 1932 to 1936.

Lack of Standards Causes Trouble; ASA Asked to Standardize Fittings

LACK of standardization of the dimensions of welding fittings of various makes has caused users of welding equipment so much difficulty, according to the Prime Movers Committee of the Edison Electric Institute, that the Committee has asked the American Standards Association to consider whether the standardization of these fittings could be undertaken under ASA procedure.

"A typical case of lack of uniformity in dimensions," says the request from the committee, "is illustrated by the 4x3 inch concentric welding reducer which is offered in four different lengths, depending on which of five manufacturers made the product, that is, it may be 4, 4½, 5, or 6½ inches long. Other welding fittings involve similar wide differences as shown in the appended tables covering representative welding fittings as manufactured by five leading firms.

"Where it is desired to use welding fittings, these conditions require that the vendor of the fittings be selected prior to detailing pipe lines on the drafting board, otherwise the material received in the field may not coincide with design details. Even where the field erection crew does its own detailing, it would be impractical to have several brands of fittings on the same job, each

with different dimensions. If fittings of another manufacturer are purchased inadvertently and mixed with those intended for the job, the pipe line as actually erected is likely to be several inches too long or too short, or have branch outlets misplaced as a result of the variation in center-to-face dimensions of welding fittings.

"This is a condition which obviously must be remedied, as it not only results in trouble and delay in the field, but tends to prevent competitive buying through practically restricting purchase of welding fittings to one vendor in order to secure definite dimensions. The project is particularly urgent in view of the increased extent to which welded construction is being used in power-plant piping. It is urged, therefore, that the dimensions of the more commonly used welding fittings be standardized to facilitate their use and enable their purchase on a competitive basis from several sources. In such a standardization program, other items should be considered in addition to dimensions as: (1) details of weld chamfer; (2) materials; (3) tolerances, etc."

This request has been brought to the attention of the ASA Standards Council and is now being given due consideration as to how it should be dealt with under ASA procedure.

Propose Standard Scale for Measuring Sugar Content

Uniformity between the French Sugar Scale and the International Sugar Scale as a basis for the standardization of the saccharimeter, instrument for determining sugar content, was urged by Frederick Bates and Francis P. Phelps in Research Paper RP916, of the National Bureau of Standards.

The French Scale is used largely in France and the French Colonies; the International Sugar Scale is the official scale of the International Commission for Uniform Methods of Sugar Analysis and is used generally throughout the world.

"Probably no industrial commodity is so widely utilized in international trade as sucrose and its associated products," says the paper. "Therefore, it is of great importance that there be but one sugar scale, that is, one basis of standardization of saccharimeters in use throughout the world. Such a consummation must ultimately be brought about in view of the importance of the matter to international trade and especially because of the necessity of reporting the results of research workers in unmistakable values."

The two different saccharimeter scales, although each supposedly gives the correct percentage of sucrose in a given sample, show a difference of approximately 0.1 per cent.

NEMA Publishes Standards For Arc-Welding Machines

The National Electrical Manufacturers Association, New York, recently published the *NEMA Electric Arc-Welding Machine Standards*. It is a reference work of practical information concerning the manufacture, test, and performance of direct and alternating current, arc welding machines.

This publication is expected to help clear up many troublesome problems for the buyer of arc-welding equipment. It defines numerous terms which have hitherto been subject to various interpretations.

Copies of the publication, No. 36-37, may be obtained from N.E.M.A., 29 West 39th Street, New York, at 50 cents.—*The Foundry, November, 1936.*

ASA to Represent American Industry On Argentine Standards Problems

WILL the American Standards Association advise the American Chamber of Commerce in Argentina on the American attitude toward specific standardization questions being considered by the Argentine standardization body? And will the American Standards Association act as a clearing house for the American Chamber of Commerce by referring such questions to competent American bodies such as the American Society for Testing Materials, the American Institute of Electrical Engineers, etc.?

These questions were recently referred to the ASA by the Engineering Committee of the Chamber of Commerce of the United States in Argentina, to both of which the American Standards Association has answered "Yes."

The problem arose when, following a conference with the American Standards Association staff in New York, September 10, representatives of the British Standards Institution visited Buenos Aires and set up a committee with a permanent secretary to "look after British interests in the Argentine standardizing movement."

The American Chamber of Commerce is planning to cooperate with the British permanent secretary, and with the Instituto Argentino de Racionalizacion de Materiales, national standardizing body in the Argentine. It has been asked by the American Standards Association to act as ASA representative on all questions arising in the future in connection with the Argentine standardization movement.

SAE Committee Acts On Auto Standards

Material progress was made on a number of subjects by subdivisions of the Society of Automotive Engineers' Standards Committee meeting in Detroit early last month.

A revised specification for automobile headlights to provide greater illumination for night driving and to give increased protection against glare, was tentatively formulated by one subdivision as part of a program to further safety in automobile operation.

Another subdivision has drafted a revised SAE specification relating to the use of so-called safety glass in motor vehicles.

The Subdivision on Transmission and Rear Axle Lubricants made a study of the lubrication problem on present day rear-axle constructions. A report of this study is published in the *SAE Journal*, November.

Another subdivision has prepared a draft specification for v-belts and pulleys to be finally worked out with the cooperation of belt manufacturers under the Rubber Manufacturers Association, with the view of bringing the present SAE Standard for fan belts and pulleys, published in the 1936 *SAE Handbook*, up to date.

A subdivision has also prepared a definite recommendation for insert valve seats covering both passenger car and heavy duty types that will be circularized to the industry for review before final adoption by the SAE. If the present program for these subjects is attained they will be ready for

final adoption at the Annual Meeting of the SAE in January. Further information regarding them may be obtained by applying to the Standards Department of the Society of Automotive Engineers, 29 West 39th Street, New York.

Forming Tools Interchangeable Under New American Standard

Interchangeability of forming tools used with different makes of screw machines of comparable stock capacity is made possible by the new American Standard for Circular and Dovetail Forming Tool Blanks (B5-1936).

The new American Standard lists 84 types of screw machines, with maximum capacities from $\frac{3}{8}$ to 7 $\frac{1}{2}$ inches. These machines are divided into six groups and tables are given

(a) for circular tools with threaded holes, for groups 1, 2, and 3;

(b) for circular tools with counterbored holes, for groups 4, 5, and 6; and

(c) for dovetail tools, for all six groups.

The standard was developed by Technical Committee 10, on Forming Tools and Holders, a subcommittee of ASA committee B5, on Small Tools and Machine Tool Elements. The committee is under the joint direction of the American Society of Mechanical Engineers, the Society of Automotive Engineers, and the National Machine Tool Builders Association.

The chairman of the technical committee is W. C. Mueller, Planning Engineer, Western Electric Company, Chicago.

Use of American Standard Pipe Thickness Schedules

by

Arthur McCutchan

Engineer, Engineering Division,
The Detroit Edison Company

Abstract of Part 2

IN tracing the origin and development of the American Standard Pipe Thickness Schedules in Part 1,¹ it was shown that adherence to these schedules will substantially diminish the number of wall thicknesses required by the piping industry, which in turn will tend to reduce the items carried in jobber's stock for small orders.

The first two tables of a series covering the dimensional properties of pipe conforming to these schedule numbers were presented with Part 1 in *Heating, Piping and Air Conditioning*, October. Table 1 covered the properties of Schedule 40 pipe, which in sizes 10 in. and smaller corresponds to the old "standard weight" pipe. Table 2 covered Schedules 10, 20 and 30 pipe which is sometimes referred to as "thin-wall" pipe. Tables 3 to 6 cover the full range Schedules 80, 120 and 160, and intermediate Schedules 60, 100 and 140.

A better idea of the significance of the P/S ratios,² referred to in Part 1, and the reasons for some schedules extending through the small sizes while others do not is shown in Fig. 1 (see page 330). In this figure the nominal pipe size vs the computed wall thickness for each P/S ratio chosen for a schedule number is represented by a separate line. The divergence of the lines as they radiate from the origin of the plot demonstrates

The use of the American Standard for Wrought Iron and Wrought Steel Pipe (B36.10-1935) is described in two articles by Mr. McCutchan published in full in the October and November issues of *Heating, Piping, and Air Conditioning*.

Part 1, abstracted in the November issue of *Industrial Standardization*, describes the schedules of pipe wall thicknesses of the American Standard and explains their use.

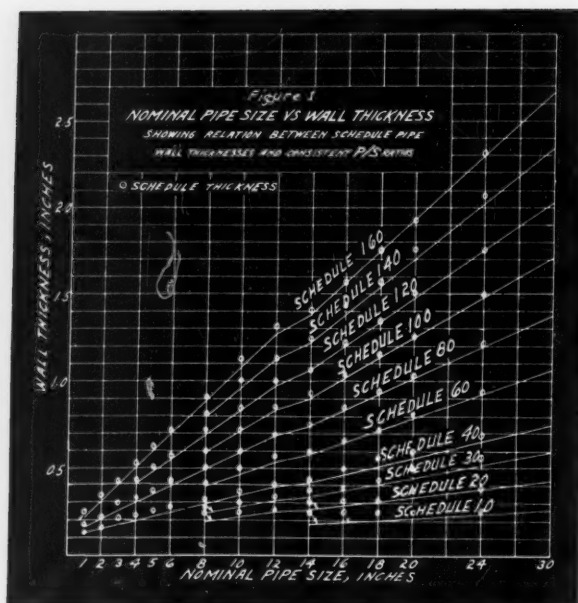
Part 2, abstracted here, explains the significance of the properties covered and their use in piping design.

Tables showing the dimensional properties of pipe, compiled from the standard and from the American Tentative Standard Code for Pressure Piping (B31.1-1935), are presented in the original articles. Tables 1 and 2 were given in Part 1, *Heating, Piping, and Air Conditioning*, October. Table 1 covered the Properties of Schedule 40 pipe, which in sizes 10 in. and smaller corresponds to the old "standard weight" pipe. Table 2 covered Schedules 10, 20, and 30 pipe which is sometimes referred to as "thin-wall" pipe.

Tables 3 to 6 are given in Part 2, *Heating, Piping, and Air Conditioning*, November. These tables cover the full range Schedules 80, 120, and 160, and intermediate Schedules 60, 100, and 140.

¹*Heating, Piping and Air Conditioning*, October, 1936, pp 531-535.

²The schedule numbers indicate approximate values of 1000X P/S , in which P is working pressure and S allowable stress.



the reason why more schedules of wall thickness are needed in the large pipe sizes than in the small sizes where the radial lines are relatively close together.

The fact that the wall thicknesses selected were in some cases thicker than the computed values is shown by the individual points spotted adjacent to the theoretical lines. Because the wall thicknesses are plotted against nominal pipe size in this figure rather than against outside diameter, there is a change in slope of the lines between the 12 and 14 in. sizes but this difference in slope does not mean that the ratios of P/S are inconsistent.

Incidentally, the correspondence between actual plotted thickness and consistent P/S lines shown in the figure indicates to what extent computation for one pipe size of the working stress for a given service condition can be extended to the other sizes. For example, if calculations show that Schedule 160 wall thickness is satisfactory for the 16 in. pipe size which lies on the theoretical line, it can be determined from inspection of this figure that Schedule 160 will be adequate for the balance of the pipe sizes which lie on or above this theoretical line. Likewise, it is evident from this figure that computation of the 10 in. size which lies above this line does not necessarily show that the other sizes will have adequate wall thickness for the given service condition.

While, of course, no great novelty can be claimed for these tables³ beyond switching to schedule numbers, an effort has been made to include all the essential properties required in pip-

³Published in the complete articles in *Heating, Piping and Air Conditioning*.

ing design without making the tables unduly complicated. Thus, the inside diameter to the fifth power is included since it appears in the majority of the formulas for pressure loss involving volume or weight of flow, while the section modulus has been omitted since it seldom is called for outside of structural design. Where needed for computing the strength of pipe used for structural supports, the section modulus S can be obtained quite simply from the relation $S = 2 I/D$ since values for the outside diameter D and the moment of inertia I are given in the tables.

An eight-bank calculating machine was used in computing the values given in the tables for all but the pipe thicknesses which correspond to "standard weight" and "extra strong" designations. The properties of pipe for these latter wall thicknesses were taken from existing tables. The intermediate figures used in determining the moment of inertia, inside diameter to the fifth power, and the like, were carried out to eight places to insure numerical accuracy, although commercial variations in wall thickness render extreme accuracy meaningless.

Revise Recommendation On Surgical Gauze

A revision of the Simplified Practice Recommendation R86, Surgical Gauze, has been approved by the standing committee in charge, and copies have been mailed by the Division of Simplified Practice, National Bureau of Standards, to all interests for consideration and approval.

The revision proposes the elimination of ten items for which there is small demand, distributed throughout the general list of surgical gauze covered by the recommendation. The recommendation lists the widths, constructions, and lengths of gauze, crinoline, bandage rolls, and bandages, and the constructions and lengths of package goods.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Change Standard Regulations For Using Pyroxylin Plastics

Amendments to the standard Regulations for the Storage, Handling, and Use of Pyroxylin Plastics in Factories Making Articles Therefrom, adopted by the National Fire Protection Association, are now available from the N.F.P.A., 60 Battery March Street, Boston, Mass.

The American Standards Association

THE American Standards Association is a federation of national groups dealing with standardization. Through it government, industry, labor, and the consumer work together to develop mutually satisfactory standards.

Approximately 3,000 individuals, representing some 500 organizations, are members of the committees working on standards under the procedure of the American Standards Association. A total of 357 national standards have already been approved by the ASA.

Six groups of experts supervise the work of the American Standards Association in building, mining, safety, consumer goods, and the mechanical and electrical industries. This is the beginning of a general departmentalization of the Association's work to prevent overlapping and duplication, and to correlate all standards activities in these fields.

The groups already acting are the Building Code Correlating Committee, the Mining Standardization Correlating Committee, the Safety Code Correlating Committee, the Advisory Committee on Ultimate Consumer Goods, the Mechanical Standards Committee, and the Electrical Standards Committee. Other industries on which standardization work is going forward include chemical, wood, metallurgy, transportation, civil engineering, and miscellaneous subjects.

The American Standards Association, as a member of the International Standards Association, is the authoritative channel through which American industry can cooperate in international standardization.

Membership in the American Standards Association is divided into two groups—Member-Bodies and Company Members. Member-Bodies are associations which through their membership in ASA are represented on the Standards Council, the committee responsible for all final decisions on standardization problems. Member-Bodies rotate in nominating members on the ASA Board of Directors, which determines the general policy of the Association.

Company Members are entitled to services from the American Standards Association according to the amount of dues they pay as members. These services include free standards, discounts on standards approved by the American Standards Association, free copies of *Industrial Standardization*, and use of the American Standards Association Library.

The Library, the only place in the United States where an up-to-date list and copies of foreign standards are kept, has a total of 20,000 books and pamphlets all on standardization problems. A library research service to locate material on specific standards questions is included.

Fifty-six national organizations, including technical societies, trade associations, and departments of the federal government, and some 1,800 companies, are now members of the American Standards Association.

Join the **American Standards Association** **It Saves Money for Industry!**

American Standards

- permit high quality production at low cost
- assure uniform and reliable performance
- facilitate quality control in manufacturing
- establish safe and healthy working conditions
- create a basis of producer-user agreement

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